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CONFIDENTIAL - SECURITY

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**FIELDS POINT MANUFACTURING CORPORATION**

*No letter # 1743-2 History*

PROVIDENCE, R. I.

**LABORATORY REPORT**

**SUBJECT** Sodium Hypochlorite  
**SUBMITTED BY** Fields Point Manufacturing Corp.  
**DATE** September 23, 1974



**I. Manufacture**

**A. Raw Materials**

- 1. 50% Caustic Soda (NaOH)
- 2. Chlorine (Cl<sub>2</sub>)
- 3. Water (H<sub>2</sub>O)

**B. Caustic Preparation**

- 1. 50% Caustic Soda plus water = Approximately 20% Caustic Soda solution

**C. Preparation of Sodium Hypochlorite (Efficacy)**

- 1. 20% Caustic Soda solution plus Chlorine = 15% Sodium Hypochlorite
  - (a)  $2 \text{ NaOH} + \text{Cl}_2 = \text{NaOCl} + \text{NaCl} + \text{H}_2\text{O}$
  - (b) Residual or Free NaOH (for stability) = 0.6%



*223 24-6  
239346-2-1*

**BEST DOCUMENT AVAILABLE**

*1085*

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Raven System Research, Inc.  
Filed by R.C. Date: 11/1/54

**FIELDS POINT MANUFACTURING CORPORATION**

PROVIDENCE, R. I.

**LABORATORY REPORT**

**SUBJECT**

**TOXICITY: LD<sub>50</sub> 12 mg./kg. of Wt. (Rat)**

**SUBMITTED BY**

**DATE**

**Reference**

**Chlorox Co.**

**Pesticide Chemical Official Compendium**

**American Association of Pesticide Control Official, Inc.**

**15% SODIUM HYPOCHLORITE**

**HAZARD:**

**FIRE AND EXPLOSION:** Not combustible but may generate sufficient heat, when contacted with organic material, to ignite combustible material.

**LIFE HAZARD:** Toxic. A severe eye hazard, clothing may ignite if contacted. Wear protective shields, gloves and clothing to avoid contact with skin.

**FIRE FIGHTING PHASES:** Flood with water using care not to splatter or splash. Heat will cause oxygen evolution so that copious amounts of water should be used to cool storage vessels.

**STORAGE:** Keep in cool dark area away from sunlight and heat. Separate from acids, metals, explosives, peroxides, organic compounds and ignitable materials.

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## FIELDS POINT MANUFACTURING CORPORATION

PROVIDENCE, R. I.

### LABORATORY REPORT

SUBJECT PHYSICAL AND CHEMICAL PROPERTIES OF FIELDS POINT MANUFACTURING CORPORATION  
SODIUM HYPOCHLORITE.

SUBMITTED BY Joseph L. Casparella

DATE

Specific Gravity	- 1.205 @ 20°C
Boiling Point	- 102.5°C - 217°F
Freezing Point	- -17°C - +1.4°F
Density	- 10.06 lbs. per gallon @ 20°C
Weight of Chlorine per gallon	- 1.25 lbs. - 1.33 lbs.
Specific Heat	- 0.90 B.T.U. per pound
Viscosity	- 32.8 S.S.U.

### TYPICAL ANALYSIS OF SODIUM HYPOCHLORITE

Available Chlorine	- 12.45% - 13.28%	150.0 - 160.0 g.p.l.
Total Chloride as Cl.	- 12.93% - 13.75%	156.0 - 166.0 g.p.l.
Sodium Hypochlorite as NaOCl	- 13.09% - 13.95%	157.5 - 168.1 g.p.l.
Sodium Chlorate as NaClO <sub>3</sub>	- None to Trace	
Sodium Sulphate as Na <sub>2</sub> SO <sub>4</sub>	- 0.056%	
Alkalinity as NaOH	- 0.25% - 0.33%	3.0 - 4.0 g.p.l.
Alkalinity as Na <sub>2</sub> O <sub>3</sub>	- .10% - .116%	2.0 - 4.0 g.p.l.
Alkalinity as Na <sub>2</sub> O	- .098% - .115%	1.6 - 3.9 g.p.l.
Oxides of Iron & Aluminum	- 0.000168% - 1.68 P.P.M.	
Aluminum as Al	- None	
Iron as Fe	- 0.000035% - 0.35 P.P.M.	
Calcium as Ca	- Trace	
Magnesium as Mg	- 0.000145% - 1.7 P.P.M.	
Copper, Nickel and Manganese	- None	
pH	- 10.6 - 11.0	

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## FIELDS POINT MANUFACTURING CORPORATION

PROVIDENCE, R. I.

### LABORATORY REPORT

**SUBJECT** Safety Precautions for Storage and Handling of Sodium Hypochlorite  
**SUBMITTED BY** Joseph L. Campanella, Chemical Engineer

**DATE**

All storage facilities should be located or placed in a cool area away from sunlight and heat. Precautions must also be taken to avoid freezing. Open tanks should be covered to prevent contamination and hazardous conditions. Never use containers other than those recommended for the storage and transportation of Sodium Hypochlorite. Direct contact of metals, other than those specified, with bleach solutions is not recommended. The use metal tanks properly lined is considered good practise. Piping and valves should be of the rubber lined or plastic type and preferably of the flanged type.

Protective equipment such as rubber gloves and goggles should be used when handling sodium hypochlorite. Any large spills of sodium hypochlorite on clothing should be washed immediately and the clothes removed. If contact is made with the skin or any part of the body it should be washed immediately with large amounts of water and a physician consulted at once. Never apply a salve or ointment except on the advise of a physician.

#### Toxicity

##### Systemic Effects

Sodium Hypochlorite if taken internally will irritate the mucous membranes, the respiratory system and skin. It produces no known cumulative effects.

##### Local Effects

Sodium Hypochlorite in contact with the eyes or skin may cause local irritation and/or burns.

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## FIELDS POINT MANUFACTURING CORPORATION

PROVIDENCE, R. I.

### LABORATORY REPORT

**SUBJECT** Suggested Uses of Sodium Hypochlorite as a Bactericide, Disinfectant, Deodorant.

**SUBMITTED BY** Joseph L. Campanella, Chemical Engineer

**DATE**

**Meat Processing Plants** To eliminate offensive odors and avoid contamination of Meats.  
To improve tanning qualities of hides and prevent their deterioration.  
To control off-color and off-tastes in meat products, and to prevent slime and mold formations.  
To disinfect equipment and utensils that might otherwise contaminate meats.  
To maintain general hygienic conditions in toilets, locker room elevator pits etc.  
To act as a deodorant and disinfectant in poultry feeding and dressing.

**Canneries** Treatment of water supplies and cooling waters, prevention of algae and slime, and the control of objectional odors caused by food wastes.

**Fresh Fruit and Vegetable Washing** To remove bacteria which would remain on fruits and vegetables and cause rapid spoilage.

**Sea Food Processing** For use in the manufacture of ice to preserve the catch and control odors in fishing boats.  
To reduce the bacteria present in live oysters and to sanitize and deodorize containers in which sea food is packed.  
To aid in the removal of slime from fish before they reach the filleting table.

**Dairy Plants** To disinfect plant water supply, sanitize walls and surfaces; to control mold growths and mildew; general deodorizing; treatment of plant wastes.

**Swimming Pool Sanitation** To inhibit the growth of algae and formation of slime. To keep the pool safe against the transmission of infectious disease.  
To prevent athlete's foot by the use of fungicidal footbaths around swimming pools, locker rooms and shower rooms.

**Beverage Plants** For various sanitation purposes such as preparing solutions for bacterial treatment of plant equipment. Providing chlorinated wash-down water for general sanitation and odor control. Chlorinating rinse water on bottle washers. Preventing bacterial growth and inhibiting slime formation. Chlorinating entire plant water supply.

**General Household Use** For removal of stains and sanitizing clothes during washing. General household use such as cleaning floors, walls, toilets, sink and cellar drains to prevent odor formations and bacterial growths.

IT IS RECOMMENDED THAT YOUR LOCAL SUPPLIER BE CONSULTED FOR PROPER DILUTION STRENGTHS

SEE DOCUMENT AVAILABLE

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**DATA  
EVALUATION  
RECORD**

TD450030 DATA EVALUATION RECORD PAGE 1 OF  
CASE 650120 HYPOCHLORITES PW 09/18/80

===== CHEM 014703 Sodium hypochlorite

BRANCH RCRP DISC 05 TOPIC 05 GUIDELINE 80 CFR 163.01-8

FORMULATION 00 - FORMULATION NOT IDENTIFIED

===== FICHE/MASTER ID 00007500 CONTENT CAT 02

Campanella, J.L. (1974) Laboratory Reports Sodium hypochlorite,  
(Unpublished study received Oct 1, 1974 under 1763-2; submitted  
by Fields Point Chemical, Inc., Providence, R.I.; CRL1230324-8)

===== SURST, CLASS = S.

OTHER SUBJECT DESCRIPTORS

PRIM: -50-1015 TOP: -80-05  
SECT: RCRP-05-20

===== DIRECT PW TIME = 1/2 hr (MM) START-DATE END DATE

REVIEWED BY:

TITLE: Adrian Burns  
ORIG: Chemist  
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344-2246

SIGNATURE:

DATE: 9/18/80

===== APPROVED BY:

Charles L. Trichilo  
TITLE: Residue Chemistry Branch  
ORIG: RSD - OPP  
LOC/TEL: 557-7324

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DATE:

Conclusion: This citation is a summary of a lab report submitted by Fields Point Manufacturing Corporation listing several informative properties of a 15% sodium hypochlorite solution including (1) a manufacturing procedure; (2) toxicity; (3) hazards; (4) physical and chemical properties; (5) safety precautions for storage and handling; and (6) suggested uses. Some of the above information is pertinent for the registration guideline standards for sodium hypochlorites.

Methods and Materials: These are not fully described in the citation.

Results: The results which are pertinent for the registration guideline standards for 15% sodium hypochlorite are:

- |                                    |                         |
|------------------------------------|-------------------------|
| (1) Specific gravity               | + 1.205 @ 20°C          |
| (2) Boiling point                  | + 102.5° C (217°F)      |
| (3) Freezing point (wetting point) | + 17°C (+1.4°F)         |
| (4) Density                        | + 10.06 lbs/gal @ 20°C  |
| (5) Specific heat                  | + 0.90 B.T.U. per pound |
| (6) Viscosity                      | + 32.8 S.S.U.           |
| (7) pH                             | + 10.6 - 11.0           |